

Alec Issigonis

Born 1906. Designer of the Mini.

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1. Introduction



Sir Alexander Arnold Constantine Issigonis CBE FRS RDI (18 November 1906 – 2 October 1988) was a British automotive designer. He designed the Mini, launched by the British Motor Corporation in 1959, and voted the second most influential car of the 20th century in 1999.



The machine factory (shown above in a company letter of 1910) founded by Demosthenis Issigonis, Alec's grandfather, once a thriving Greek businesses in Smyrna (now Izmir).

Issigonis was born on 18 November 1906 in the Ottoman port city of Smyrna, the only child of Constantine Issigonis and Hulda Prokopp. His paternal grandfather, Demosthenis, had migrated to Smyrna from the Greek island of Paros in the 1830s and Constantine was a successful and wealthy shipbuilding engineer. His maternal ancestors originated in the Kingdom of Württemberg. It was through his mother's kinships that Issigonis was a first cousin once removed to BMW and Volkswagen director Bernd Pischetsrieder.

As British subjects - his father having naturalised whilst studying engineering in London in 1897 - Issigonis and his parents were evacuated to Malta by the Royal Navy in September 1922 ahead of the Great Fire of Smyrna and the Turkish capture of Smyrna at the end of the Greco-Turkish War. His father died shortly after and Issigonis and his mother moved to the United Kingdom in 1923. Issigonis studied engineering at Battersea Polytechnic in London. Having failed his mathematics exams three times, subsequently declaring it 'the most uncreative subject you can study', Issigonis decided to enter the University of London External Programme to complete his university education.

Issigonis went into the motor industry as an engineer and designer working for Humber and competed successfully in motor racing during the 1930s and 1940s. Starting around 1930, he raced a supercharged "Ulster" Austin Seven, later fitting it with a front axle of his own design, leading to employment at Austin. This greatly modified machine was replaced with a radical special completed in 1939, constructed of plywood laminated in aluminium sheeting. The suspension was also of advanced design, with trailing arm front suspension attached to a steel cross-member, and swing axle rear, all with rubber springs made of catapult elastic. This car was remarkably light, weighing 587 lb, of which the engine contributed 252 lb. By the time the chassis had been completed (hard labour—it was all done by hand, no power tools), Issigonis had moved to Morris Motors Limited, but Austin supplied a "works" specification supercharged side-valve engine. Issigonis usually won, even when entered in the 1100cc class if there was no 750cc category. Most events entered were sprints, but he also raced at circuits.

In 1936, he moved to Morris Motors Limited at Cowley working on an independent front suspension system for the Morris 10. The war prevented this design from going into production but it was later used on the MG Y-type. He worked on various projects for Morris through the war and towards its end started work on an advanced post war car codenamed Mosquito that became the Morris Minor, which was produced from 1948 until 1971. In 1952, just as the British Motor Corporation (BMC) was formed by the merger of Morris and Austin, he moved to Alvis Cars where he designed an advanced saloon with all-aluminium V-8 engine, and

experimented with interconnected independent suspension systems. This prototype was never manufactured because its cost was beyond Alvis's resources.

At the end of 1955, Issigonis was recruited back into BMC, this time into the Austin plant at Longbridge, by its chairman Sir Leonard Lord, to design a new model family of three cars. The XC (experimental car) code names assigned for the new cars were XC/9001, for a large comfortable car, XC/9002, for a medium-sized family car, and XC/9003, for a small town car. During 1956 Issigonis concentrated on the larger two cars, producing several prototypes for testing.

However, at the end of 1956, following fuel rationing brought about by the Suez Crisis, Issigonis was ordered by Lord to bring the smaller car, XC/9003, to production as quickly as possible. By early 1957, prototypes were running, and by mid-1957 the project was given an official drawing office project number (ADO15) so that the thousands of drawings required for production could be produced. In August 1959 the car was launched as the Morris Mini Minor and the Austin Seven, which soon became known as the Austin Mini. In later years, the car would become known simply as the Mini. Due to time pressures, the interconnected suspension system that Issigonis had planned for the car was replaced by an equally novel, but cruder, rubber cone system designed by Alex Moulton. The Mini went on to become the best selling British car in history with a production run of 5.3 million cars. This ground-breaking design, with its front wheel drive, transverse engine, sump gearbox, 10-inch wheels, and phenomenal space efficiency, was still being manufactured in 2000 and has been the inspiration for almost all small front-wheel drive cars produced since the early 1960s.

In 1961, with the Mini gaining popularity, Issigonis was promoted to Technical Director of BMC. He continued to be responsible for his original XC projects. XC/9002 became ADO16 and was launched as the Morris 1100 with the Hydrolastic interconnected suspension system in August 1962. XC/9001 became ADO17 and was launched, also with the Hydrolastic suspension system, as the Austin 1800 in October 1964. The same principle was carried over for his next production car the Austin Maxi, However, by then he had become more aware of the cost considerations of vehicle manufacture and in service warranty costs which were crippling BMC. It certainly appeared by the Maxi development era that Issigonis wanted to "do his own thing" as cost cutting and development costs spiraled. He would instead research work on his Mini replacement the 9X with its compact transverse engine. With the creation of British Leyland in 1969, new chairman Lord Stokes quickly sidelined Issigonis and made him into what was termed "Special Developments Director", replacing him with Harry Webster as the new Technical Director (Small/Medium cars).

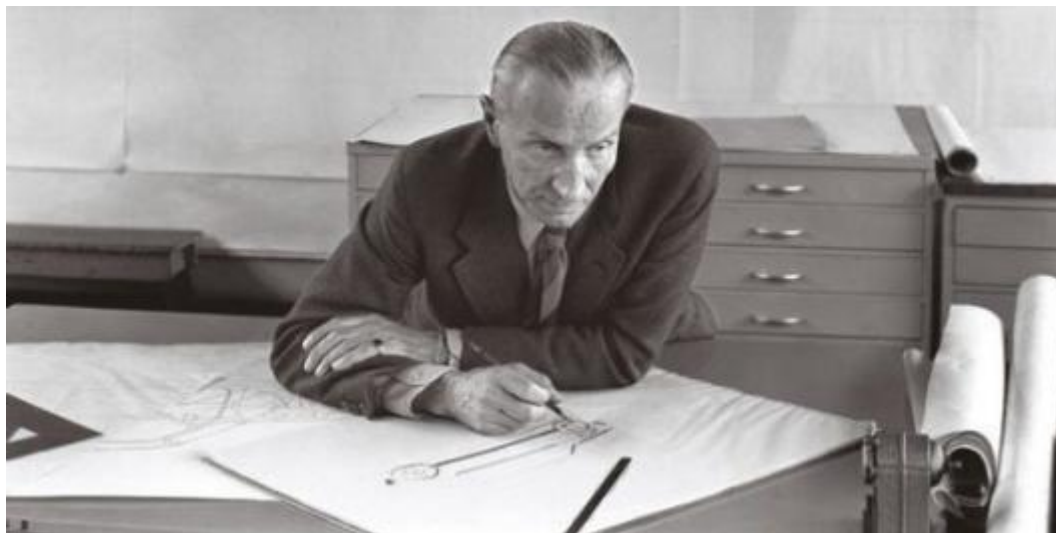
Stokes was heard on his appointment to say: "We'll sharp sort this bloke Issigonis out!".

Issigonis was nicknamed "the Greek god" by his contemporaries. Whilst he is most famous for his creation of the Mini, he was most proud of his participation in the design of the Morris Minor. He considered it to be a vehicle that combined many of the luxuries and conveniences of a good motor car with a price suitable for the working classes – in contrast to the Mini which was a spartan mode of conveyance with everything cut to the bone. Issigonis often commented to friends and colleagues that the Austin 1800 (ADO17) was the design he was most proud of, even though it never was as commercially successful as his three preceding designs.

Issigonis officially retired from the motor industry in 1971, although he continued working until shortly before his death in 1988 at his house in Edgbaston, Birmingham. He was cremated at the Lodge Hill Cemetery in nearby Selly Oak.

2. Biography

The following chapter was archived in 2021, with acknowledgement and thanks, from the Curbside Classic website at www.curbsideclassic.com. It was written by Roger Carr and was published in October 2016.



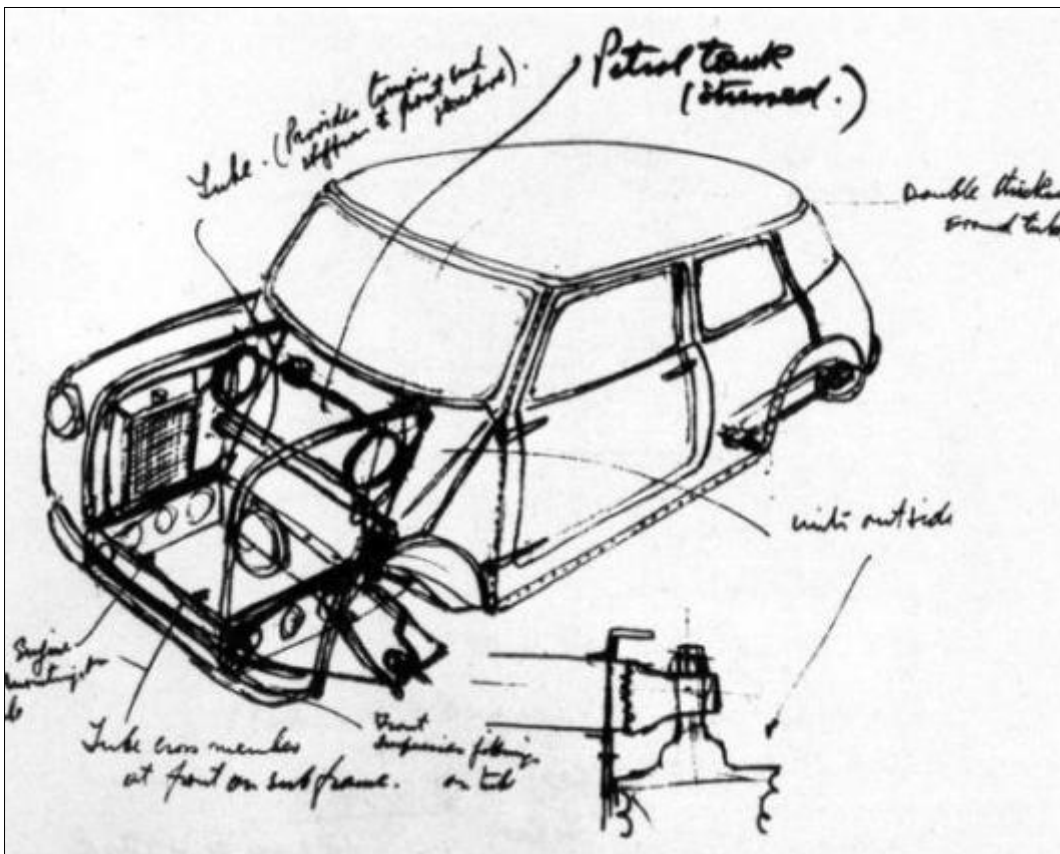
Alec Issigonis, along with Sir Henry Royce and perhaps Colin Chapman, has the greatest name recognition in the UK for any British car designer or engineer. At the peak of his career he was by far the most well-known personality in the British motor industry, one of the most well-known names in the European motor industry, and was the first and perhaps the only car British designer who could claim celebrity status.

His name will always be associated with the Morris Minor and the Mini, but he was a complex man with a complex background, family, story and career. There is a truck factory in the city of Izmir, on the western Mediterranean coast of Turkey, built by the British Motor Corporation (BMC) in 1967, and which still builds vehicles under the [BMC](#) brand. At the opening of the factory BMC was represented by Sir Alec Issigonis. There was a good reason for BMC selecting him for this task, for Issigonis was born in Izmir.

Alec Issigonis, or more formally Sir Alexander Arnold Constantine Issigonis CBE FRS RDI (1906 – 1988), is best known as the creator of the Mini, but he also designed two other cars that have featured on CC and that are amongst the best-selling cars in British motoring history – the Morris Minor and the Austin-Morris 1100 (ADO16). His fingerprints are all over other cars, too, the Austin 1800 Land Crab and the Austin Maxi for example, but not always as successfully, as we shall see.

Issigonis was an engineer, first and foremost, but I have used the terms “design/designer” in this piece, in the way that was contemporaneous to

Issigonis and as he would have understood it, although we would now use use “engineering”.



Issigonis' name will always be associated with the Morris Minor, built for over 20 years, and with the Mini, a car he designed very quickly in the late 1950s and which was built for over 40 years, throughout the tumultuous history of BMC and BLMC, ending only after the BMW led break up of the Rover Group in 2000. He was a complex man, with a complex background, family story and career.

Issigonis' grandfather, Demosthenis Issigonis, had emigrated from Paros in Greece to Smyrna (as Izmir was then known) in the mid 19th century where his engineering company helped the British built the Smyrna-Aydın Railway, and through this acquired British citizenship. Alec's father, Constantine Issigonis, who was born in Smyrna in 1872, studied in England, and subsequently returned to Smyrna, keeping the engineering business going through the First World War and maintaining his British citizenship. Issigonis's mother, Hulda Prokopp, was descended from a Bavarian brewing family who had settled in Smyrna, and established a brewery.



Young Alec grew up in a very affluent environment, with influences from Germany and Greece (he grew up speaking German and Greek), rather than Turkey and Britain. Issigonis showed little interest in things mechanical

until he was well into his teens, not riding in a car until he was 14 years old, and was seemingly more interested in art, under the strong influence of his mother.

At the end of the Greek-Turkish war in 1922, British subjects in Smyrna were evacuated by the Royal Navy, ahead of the Turkish re-possession of the area from Greece, with many initially travelling to Malta. Tragically, Constantine Issigonis contracted a serious illness, and died in Malta in June 1923. Prior to his death,

Alec and his mother travelled overland to London. Hulda Issigonis then returned to Malta, leaving sixteen year old Alec alone in London, returning only after Constantine had died.

Alec completed his education at an English boarding school, and in 1925, took a two month tour, by car, of Europe with his mother before returning to take a place at Battersea Polytechnic in south London, to study mechanical engineering. He failed his degree course but gained a diploma in Mechanical Engineering, at the third attempt, in 1928.

Given his disrupted education, unusual background and the tough economic times that were the late 1920s, finding a job was not easy, but in 1928, and by now a British citizen in his own right, Issigonis took his first job in the motor industry, for Edward Gillett in London, through a networking contact he had made at Battersea. Gillett was developing a freewheel device for use on cars, partly as a refinement and fuel economy device, and partly to reduce the need for double declutching gearchanges in the pre-synchromesh era.



Issigonis worked as a draughtsman and design engineer, and also in a sales and project engineer role, succeeding in securing Rover as a customer use the freewheel device on the new for 1933 Rover Ten (P1 series, above). Issigonis' customer in this case was Maurice Wilks, later the man behind the Land Rover.

Rover used the freewheel extensively, on cars and Land Rovers, into the 1960s. Chrysler also took a licence to manufacture the device, which was an integral part of their pioneering overdrive in 1934.



Humber were more interested in the sales engineer than his product, and Issigonis moved to Humber in 1933. Humber was the upscale brand of the Rootes Group, but also the name of the main car building company in the Group. Issigonis's first project was to design an independent suspension for Rootes' highest volume car, the Hillman Minx.

Later, he was working on an independent suspension for the larger Humber Hawk, with another rising star in the industry, Bill Heynes. Heynes later became Technical Director at Jaguar and was a personal friend of Issigonis for many years.



Morris Motors's design office, 1934

In 1936, Issigonis moved again, to the Morris Motor Company, as a project engineer on an independent front suspension system for the Morris 10, where his experience at Rootes would start to bear fruit. At this time, he was working for Maurice Olley.



Meanwhile from 1930, he raced a supercharged “Ulster” Austin Seven, and fitted it with an independent front suspension of his own design. Issigonis had some success at club racing level and in 1935 travelled with his lifelong friend George Dowson to the German Grand Prix at the Nurburgring.

There he witnessed the awe inspiring (and Nazi funded) Auto Union and Mercedes-Benz Grand Prix cars, as well as the Alfa Romeo P3 of Nuvolari, which won the race, much to the Nazis' discomfort. Issigonis and Dowson then travelled into Austria to the mountain climb competition at the then new Grossglockner Hochalpen Pass. Again, Issigonis was able to get close to some of the most impressive cars of the era, and take ideas and influences home.



Issigonis (standing) with the special at Shelsey Walsh hillclimb

By 1939, Issigonis had replaced his modified Austin Seven with a more radical car of his own design, constructed of plywood laminated in aluminium sheeting, in what we would now call a composite construction. The suspension was trailing arms at the front, attached to a steel cross-member, and a swing axle rear, all with rubber springs made of catapult elastic.

This car was remarkably light, weighing less than 600lb. By the time the chassis had been completed, Issigonis had somehow got hold of an Austin supplied works specification supercharged side-valve engine as well. Most events he entered were sprints and hillclimbs, but he also competed in some circuit races.



Meanwhile, back at the office, Issigonis had devised an independent coil spring system for the first unitary construction Morris, the 1938 Ten, but which did not go into production as Morris, conservative as ever, chose a more conventional and cheaper beam axle solution. It was, though, used on the postwar MG Y Type saloons. By 1938, Issigonis was lead engineer for steering and suspension for all the Morris car range.

It was apparent to Morris's senior managers that Issigonis was cut from a different cloth compared to his contemporaries. Morris's chief engineer, A V (Vic) Oak, recognised that Issigonis's greatest asset was his imagination but also noted that it needed to be guided firmly but carefully to bring out the best of it. Oak placed another engineer, Jack Daniels, alongside him to keep his feet on the ground. The relationship got to the point where Issigonis had the ideas, did the sketches and Daniels did the formal drawings.

During the war, Morris Motors undertook military work, notably the development of the Morris lightweight reconnaissance vehicle for the War Department. Issigonis was excused service in the armed forces and remained at Cowley working on military vehicles of various types, including a very basic compact load carrier often described as a motorised wheelbarrow intended for use in jungle conditions together with an amphibious version designed for use by the Royal Navy.



By 1941, Issigonis had started work on an advanced post war car, then codenamed Mosquito, which became the Morris Minor. The key point to the genesis of the Minor is that Issigonis owned the whole design, including the exterior style, the interior, which had some of the starkness and simple functionality familiar from Issigonis's later designs. He also had plans for a flat four cylinder engine, and at frequently challenged convention and Morris Motors' conservatism.



In 1942, the first scale model was produced and the following year work began on a hand-formed steel prototype. By 1945, a full scale static prototype close to the familiar production form was completed. The car was launched at the 1948 London Motor Show, alongside the Land Rover and Jaguar XK120, and the rest is pure CC history. I have labelled it the

“Most Significant Car of the 1940s”; it is probably the most recognised British car, apart from the Mini, and the most fondly remembered car by many British families and motorists.



William Morris (Lord Nuffield) didn't like it, naming it “the poached egg” and expressed no appreciation of it to Issigonis, until 1951 when 100,000 cars had been built. Vic Oak and Reginald Hanks, Morris's Managing Director did though, arranging a 50% salary increase for Issigonis in April 1948, to £1500 per year. Issigonis had also been involved in the larger Oxford, Isis and Wolseley ranges.

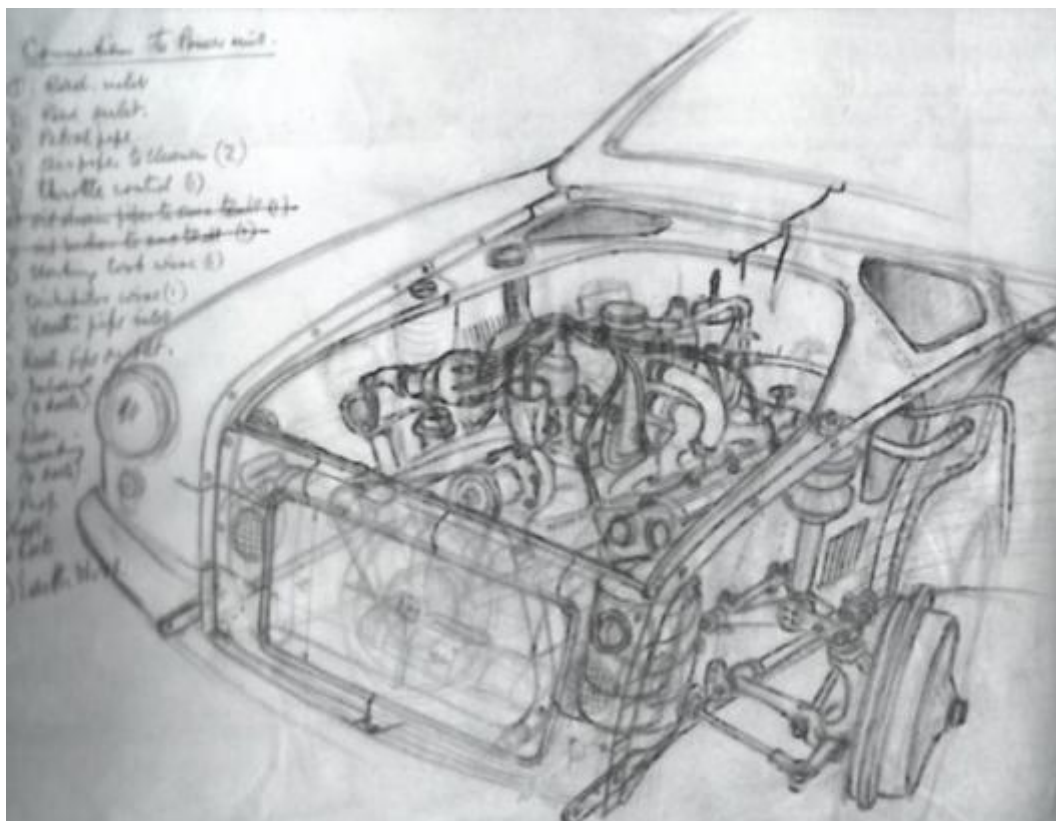
The Minor was, of course, a huge success, for Nuffield and for Issigonis. The ease of driving it, attributable to Issigonis's careful and thoughtful suspension and steering design, as well as the comparatively low weight of the car, were factors in that as well as the comfort and space it provided. It was as modern and progressive in 1948 as the ADO16 Morris 1100 was in 1962, and let down only by the relatively weak and old side valve engine.

Encouraged by the success of the Morris Minor, Issigonis continued his design work at Morris (including work on a replacement for the Minor with a transverse 4 cylinder engine with an end-on gearbox) until the merger with the Austin in 1952 to form BMC.



His last Morris projects were the 1953 Morris Oxford and Isis saloons, launched after the BMC merger, and which used the BMC B series engine. But fearful that his freedom would be curbed in such a large company, Issigonis resigned from BMC and went to work for the much smaller Alvis company. His title at Alvis was “*Engineer in charge of passenger car design*”

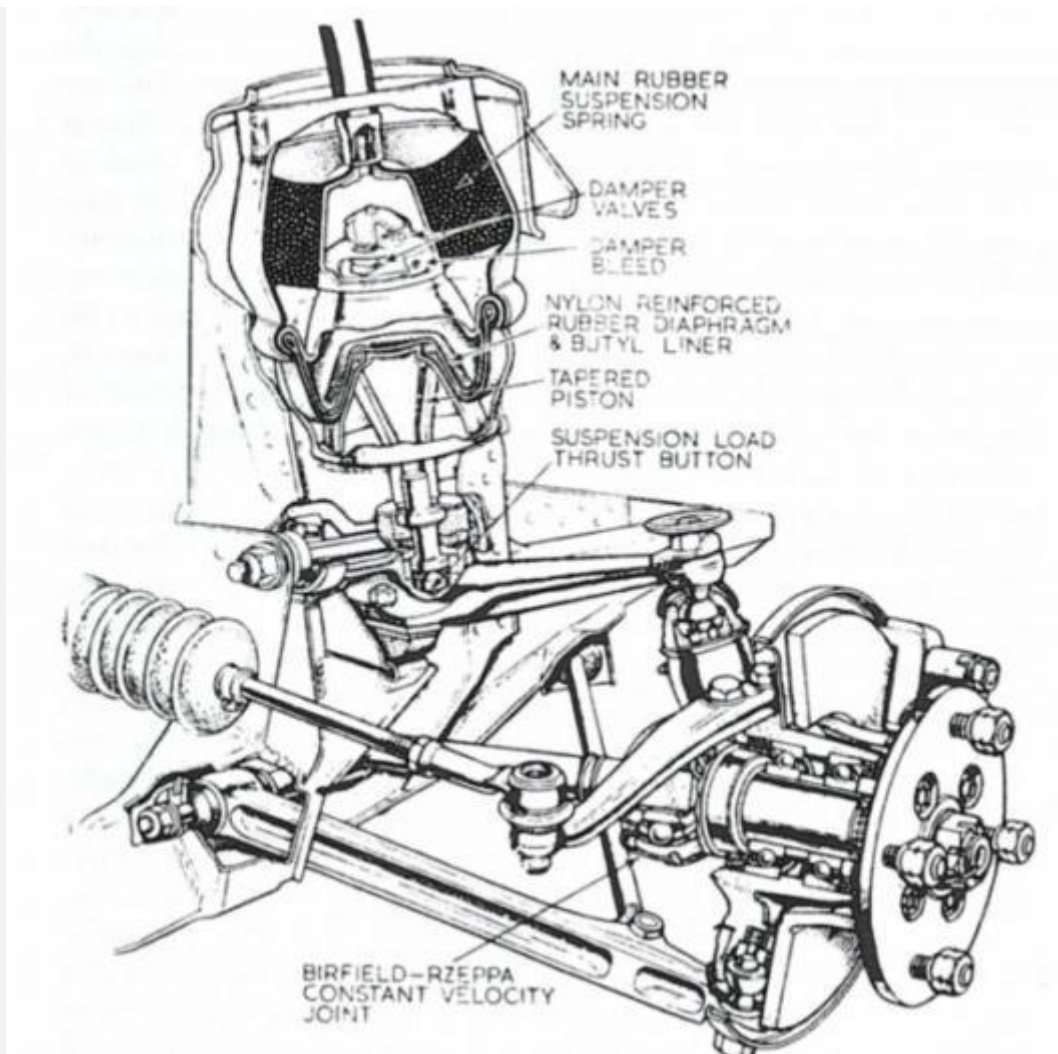
Alvis had a strong military business building armoured cars and personnel carriers, and this part of the business is still going strong as part of BAE Systems. It was also a specialist low volume producer of expensive, exclusive sports saloons – cars not now associated with Issigonis – and was at the same crossroads that so many smaller, upscale producers had been. Did they aim to build in greater volume, to compete with emerging brands such as Jaguar, or did they retreat further upmarket or even entirely into other activities?



At Alvis, Issigonis’s main task was to lead the development of a more affordable, higher volume luxury car. This was to be an advanced saloon with all aluminium V-8 engine, and the original plan was for Alvis to produce 5,000 cars a year, or ten times Alvis’s current production rate, to compete with Riley (not then a badge engineered BMC product), Rover, Sunbeam-Talbot and Jaguar. It was a very ambitious intention, which Alvis were not capable of delivering on without importing a lot of engineering talent.



It was at Alvis that Issigonis first worked with another of the influential characters of his career. Professor Alex Moulton. Moulton (above) was a scion of the family behind the Avon tyres company and a respected suspension system engineer in his own right who had worked extensively on the concept of rubber as a suspension medium, before working on the hydrolastic and later still the hydragas systems.

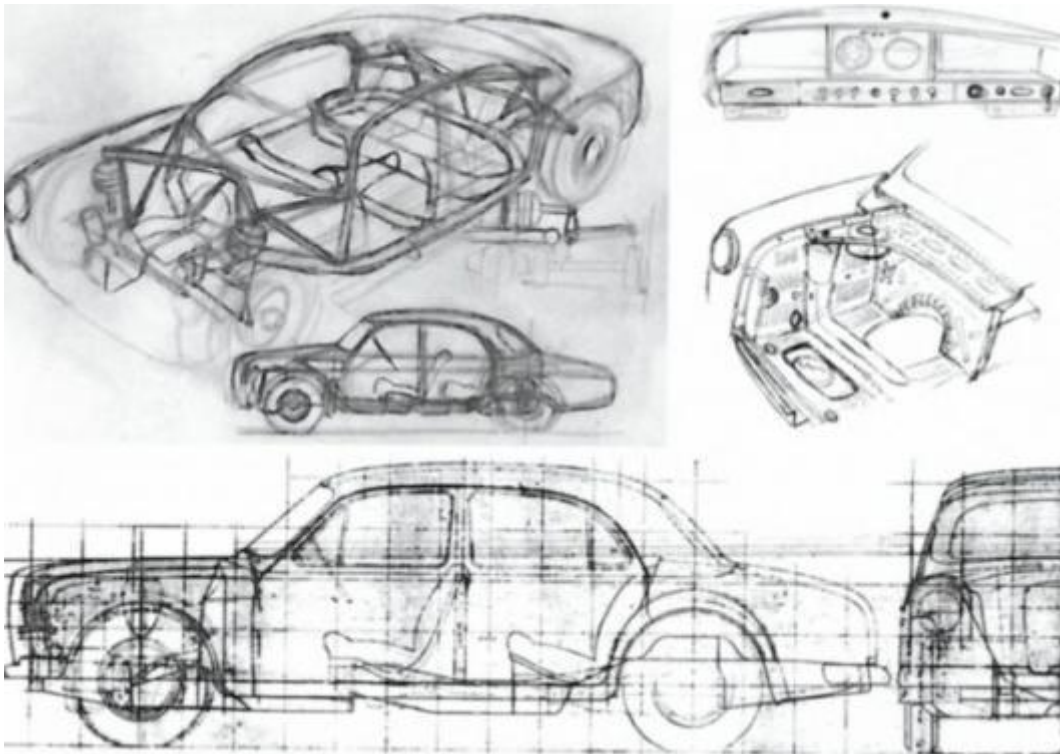


Moulton's hydrolastic suspension as installed on the BMC ADO16 by Issigonis.

Issigonis was to use Moulton's suspension ideas on all his future cars, with Moulton working in a consultancy capacity to BMC. Moulton also designed folding, rubber suspended small-wheeled bicycles.

Issigonis designed a unitary construction saloon and the V8 engine, and utilised Moulton's latest interconnected rubber suspension. The car, as developed in a prototype form, showed potential as well as technical ambition – the car's unitary construction made it relatively light and strong, it offered 6 seats, had a rear mounted transaxle, including the clutch, inboard rear brakes, long wheelbase configuration so typical of Issigonis and a modern, sophisticated 3.5 litre V8 engine. It was more like a Lancia or a rear drive Citroen than a Rover or a Sunbeam-Talbot. Probably the

closest British comparison is the Jaguar Mk 1 which came out in 1955 and was produced at a rate of around 10-15,000 for thirteen years.



Intriguingly, it seems that the car was possibly designed to be suitable for a front wheel drive layout, with a flat floor and compact Moulton rubber cone suspension, leaving a large and spacious engine bay. Issigonis planned two versions, known as the TA/350 with a 3.5 litre V8 and TA/175 with a 1750cc, V4 engine.



Style wise, the car has been identified as having a visual similarity to Lancia Aurelia the 1950-58 Lancia Aurelia saloon, with some Morris Oxford overtones and a traditional Alvis style grille added.



Ultimately, Alvis had to cancel the project, after the first prototype had been built but before the company had committed to the expenditure of production tooling. This was partly because of the cost but also because in 1953 Ford bought Briggs' UK operations and 1954 BMC bought Fisher & Ludlow. Alvis's options for body shell production were being reduced, at the same as the estimated costs of the body manufacture doubled.

When Alvis cancelled the project, Issigonis was invited by BMC Chairman Sir Leonard Lord to return to BMC at Longbridge, as Chief Body and Chassis engineer, and reporting to BMC Technical Director Sydney Smith. Issigonis quickly arranged for Jack Daniels to move up from Cowley to Longbridge to rebuild their close rapport. Daniels effectively resumed his position as Issigonis's right hand man for the next ten years or more, guiding the interpretation of Issigonis's requests to the workshops, draughtsmen, production engineers and accountants.

Issgonis preferred to work by sketching his ideas onto Arclight pads, each numbered in sequence and retained, and then having Daniels, looking after chassis elements, or another close confidant John Sheppard, looking after the body shell itself, work to turn these in physical reality. LJK Setright, in his book *The Designers* describes Issigonis as "*working as a sculptor works, moving masses into different juxtapositions until his trained eye told him they were right*". Looking at the Minor or the Mini, I can believe that.



Daniels (right) and Sheppard (left), no doubt, had to smooth a few ruffled feathers on the way. Issigonis had a reputation, deserved by all accounts, for arrogance and irascibility, an inability to suffer fools at all, and restricted his contact to as small a group as he could. For many years he was known informally as *Arragonis*, and was either sufficiently confident in himself or sufficiently lacking in understanding to use that name himself on occasions. He was also referred to as the Greek God, perhaps more openly. But beneath this surface, he was a sensitive and more vulnerable person, and was almost certainly (and inexcusably) the subject of some intolerance and prejudice from the UK born staff.

Lord (later Lord Lambury, below) had big ambitions for BMC and initially tasked Issigonis with developing the basis for a range of modern family cars to replace the existing collection of BMC products. Lord was looking for modernity, but he was also looking for commonality of engines, good quality design and cars good enough to be amongst the best in their class and internationally competitive.

"One thing that I learnt the hard way – well not the hard way, the easy way – when you're designing a new car for production, never, never copy the opposition," declared Issigonis, when asked to summarise his approach to car design. By the mid 1950s, as Europe got back on its feet after the war, there had been many attempts to define the modern car, but none was proving to be dominantly successful.



BMC had internally identified the need to move on from the concepts behind the Minor and A30, leaving behind the classic front engine, semi-elliptic spring concept but there was little clarity on which direction was perceived to be the way to go.

Was it to be front or rear engine? If it was front engine, was it to be rear wheel or front wheel drive? Where was the gearbox to be fitted on a front wheel drive car? Was it to be water or air cooled? BMC had already developed, and asked outside consultants to develop, several concepts on various themes, none of which met the targets Lord had set, who was also determined to establish an internal capability to think, as we would now say, “outside the box”. This is the main reason Lord re-hired Issigonis. He did not want more conventional answers, without at least exploring some technical advances.



Issigonis with XC/9001, the car that became the Landcrab.

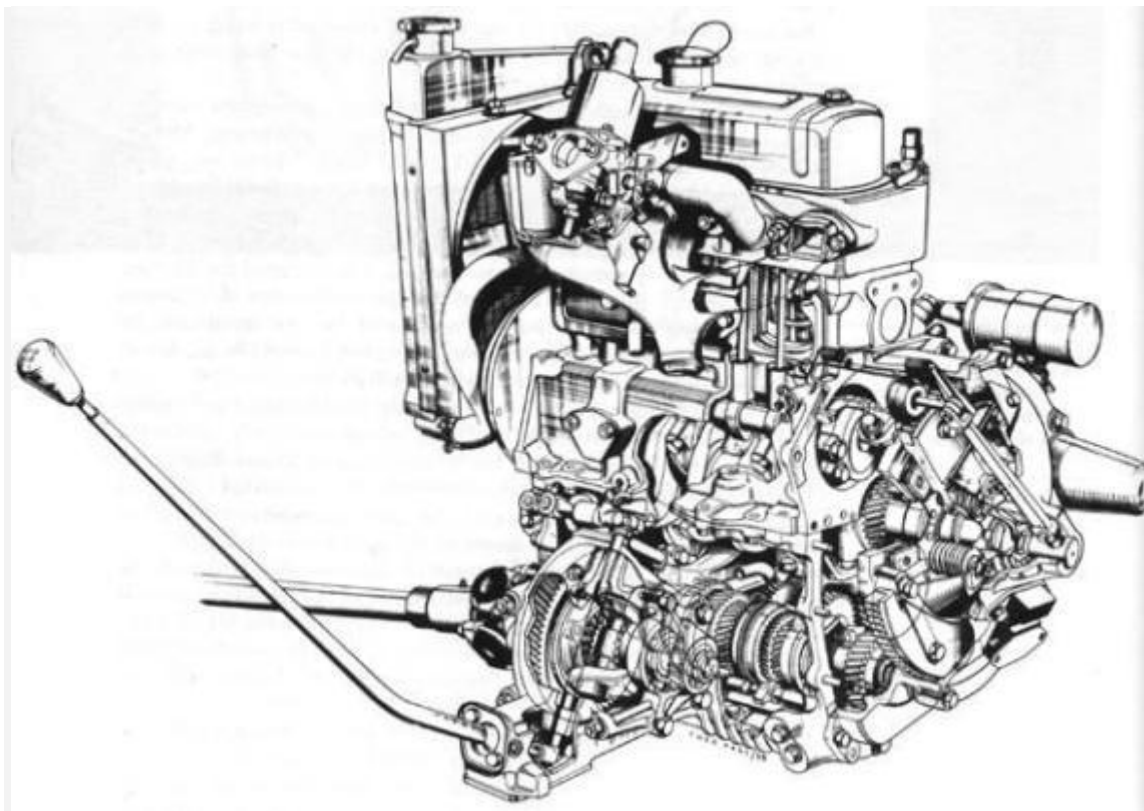
The original plan called for a large family car by 1960, to be followed by a smaller car and then a city car. Issigonis' first concepts were rear wheel drive, with a conventional drive train, fully independent suspension set on a long wheelbase with short overhangs and very rudimentary styling.

In many ways, this car was a clear, but simpler, derivative of the work Issigonis had been doing at Alvis, and Issigonis recruited some former colleagues from Alvis to BMC to develop V6 and V4 engines for the projected BMC cars, possibly using the aborted work at Alvis as a basis.



In conjunction with Issigonis' work, Lord contracted Pininfarina to lead the styling of BMC's new cars, starting with the conventionally engineered Austin A40 Farina in 1958. Issigonis (just in view at the far right) was not involved in the engineering of this car, but was able to start a long term friendship with Battista and Sergio Pininfarina, seen standing next the car with Leonard Lord and George Harriman.

But, as ever, events intervened – in this case the Suez Crisis of 1956, complete with petrol rationing. BMC made cuts of 6,000 in the labour force almost overnight and without consultation, whilst Lord noted the sales of the imported European bubble cars. In March 1957 Lord asked (more likely told, as Lord did not do “asking”) Issigonis to come up with something to compete with them.



A series engine, with gearbox beneath and side mounted radiator.

Lord's instruction was the one Issigonis had been waiting for, and he quickly developed the first Mini prototype. By placing an A series four cylinder engine transversely with the gearbox underneath in the sump and sharing the oil, and moving the wheels to the corners, he saved so much space that it was possible to accommodate a four seat car within a length of 10 feet.



Striving to ensure that as much space as possible was allocated to the passengers, Issigonis used Moulton's compact rubber suspension and had Dunlop build 10 inch wheels and tyres just for the Mini purely for reasons of space efficiency.



By October 1957, Issigonis had shown Lord a working prototype and the decision had been made to manufacture the car, using the existing BMC A series engine.

MARCH 22, 1961

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By October 1959, the Mini was on sale and when the press first got their hands on BMC's new car, they were not shy to praise it; the Mini's unique personality, exceptional space efficiency, lively performance and tenacious front-wheel-drive handling meant that it was a sure fire hit with the critics. It confronted the conservative image of BMC head on, even if the rest of BMC range didn't. Even more significantly, it effectively defined the configuration of the small and medium car for the next 50 years. It was still in production when BMW, led by Bernd Pischetsreider, bought Rover in

1994. Production only finished after BMW had bailed out of Rover in 2000.



The first car to repeat the concept of the Mini was the ADO16, which is often considered to be Issigonis's finest hour. When he turned his attention to the ADO16, Issigonis continued his obsession with the maximisation of passenger space combined with the best possible road holding. This car basically took the Mini concept and enlarged it by 20%, adding some experience, and ambition, at the same time.



It did not have everything Issigonis wanted, as he originally planned this car to have a V4 engine rather than the BMC A series. Styled by Pininfarina, it was launched as the Morris 1100 in 1962, and a year later as the Austin 1100, and the clean, classical lines of the car served BMC well. The 1100 and later 1300 outsold the Mini by a considerable margin and remained Britain's best-selling car right through the 1960s.



By 1964, BMC had built over one million front wheel drive vehicles, including over 800,000 Minis and over 200,000 ADO16s, and over a third were exported. BMC was producing over 11,000 Issigonis-designed front-wheel-drive models a week, with demand still exceeding production, which was continually increased.



In August 1971, Issigonis drove the 2 millionth ADO16 off the line, at the same time as a Mini Clubman, which was the 5 millionth front wheel drive BMC car, came off the line in the next building.



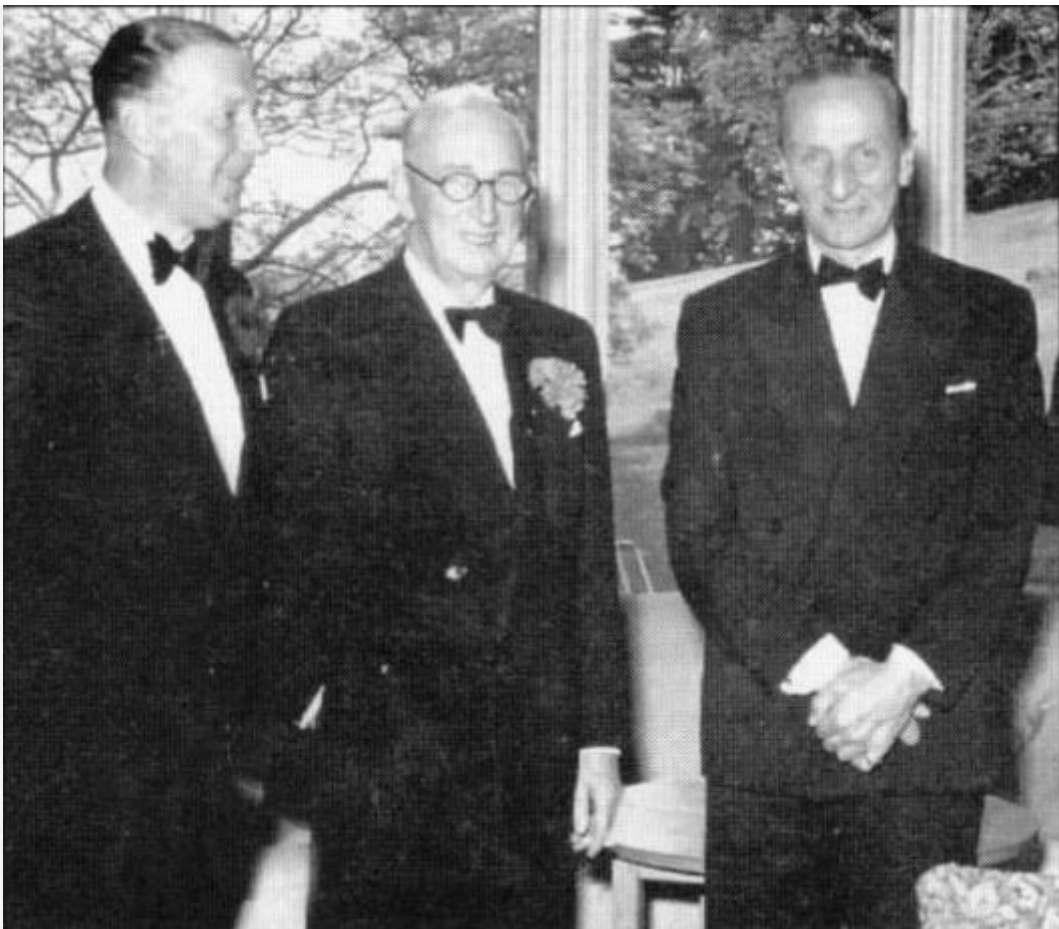
The third front wheel drive car from BMC was the 1964 ADO17 Austin 1800 (or Landcrab), a car which Issigonis has been quoted as identifying as the design he was most proud of, and then the Austin Maxi in 1969 with less successful results. There were, as CC has seen, many and varied reasons for the failure of the Landcrab and Maxi: the control (or rather the lack of it) exercised by Lord and Harriman over Issigonis; the inherited components; and marketing and production issues.

But this also reflects Issigonis's personal characteristics – he was a strong minded, stubborn and arrogant man who did not always have a lot of respect for others' opinions and suggestions. Issigonis was dismissive of market research, – *“The public don't know what they want; it's my job to tell them”* – and even mathematics, derided as *“the enemy of every truly creative man”*.

This strong streak of fierce independence and lack of compromise hid his lateral approach to the design and engineering of cars. His iconoclasm ensured that, despite the constraints of working in an industry where the size and complexity of the process meant that even the most forceful of designers was only one member of a large team, Issigonis' cars bore his own stamp – from the 1948 Morris Minor to the 1969 Maxi. Issigonis did observe and try to improve on what he saw, but always challenged himself to be original and better. He would attend the usual motor shows, but often would refuse to look in detail at the competition, so he did not *“become confused”*. He was flattered to be copied, though.



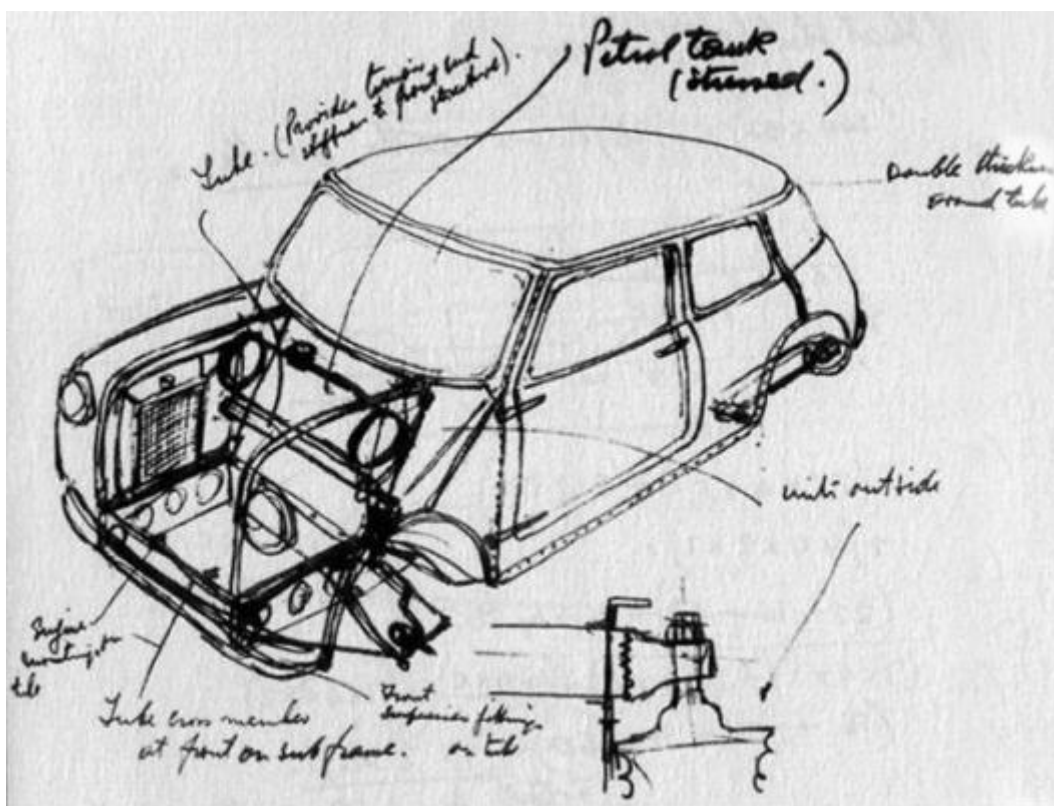
The Mini, and the other Issigonis BMC front wheel drive cars, benefited from Issigonis' continuing collaboration with Alex Moulton and his suspension system developments. The car's design with its front wheel drive and independent suspension provided good road handling, but Issigonis had scant regard for passenger comfort.



George Harriman, Leonard Lord and Alec Issigonis.

He despised such “luxuries” as radios and comfortable seats, once stating “*I would like people to sit on nails – to be extremely uncomfortable all the time.*” and declaring that “*an uncomfortable driver is an alert driver*”. He was reluctant to consider features such as large boots or hatchbacks, or engine access, as important. Engine access on the Mini was very awkward, and this was only improved on the ADO16 because Jack Daniels was able to keep Issigonis away from the detail work, which was largely done at Cowley in Oxford rather than Longbridge.

Issigonis continued to work as Engineering Director at the Austin-Morris Division of BMC, and as Technical Director of BMC in 1965. He was appointed to this post by Lord’s successor, Sir George Harriman, who was even more in awe of him than Lord was, but also was even more unable to control and guide Issigonis. .



It is arguably doubtful that Lord, knowing Issigonis better, would have seen him as the ideal candidate for the overall technical leadership of BMC. Certainly, it was not the right job for him, taking him too far away from the sketching and ideas, and into meetings about pay scale reviews and marketing policies. He often had to be discreetly talked through financial documents when he was in the board meetings.

In 1968, he was appointed as Director of Advanced Research of the newly formed British Leyland, and Harry Webster from Triumph became BLMC’s Engineering Director. Issigonis was probably privately satisfied with that arrangement, as it took him away from the daily grind of corporate management and designing production ready cars and back into

the more conceptual field where he had the opportunity to use his innovative skills – the kind of role Leonard Lord had originally given him twelve years earlier and which led to the Mini and the ADO16. The change was not handled well though, with credible accounts of a literally tearful Issigonis wandering around Longbridge trying to find a new office after returning from abroad to find Webster occupying his office.



Issigonis's retirement, with George Turnbull, then Managing Director of Austin-Morris.



In November 1971, Issigonis officially retired from BLMC, with a major ceremony at Longbridge, for which BL marshalled an example of every car

for which he had led the design, of which only the Minor was no longer in production. His retirement gift from the company was the largest available Meccano set, complete with a steam engine. Issigonis made a grandfather clock from it, which kept good time.

When he officially retired from BLMC in November 1971, Issigonis was retained by BLMC on an exclusive consultancy agreement, signed off by and reporting to the Chairman, Donald Stokes. His efforts were concentrated on two things – continuing to promote the 1968 9X concept to BLMC, and working on the concept of a gearless version of the Mini, using a torque converter, that was not a technical success.



The concept of the transverse engine and gearbox combined with FWD, which had previously been used only with two-cylinder two-stroke engines by DKW (since the 1920s), Lloyd and Saab, was adapted by Issigonis for the four cylinder A-block engine for the Mini. It has since proved to be the template for the small car for nearly 60 years – it has still not been bettered and was followed as early as 1963 by the Autobianchi Primula, which had the first end on gearbox on its transverse engine, by the 1965 Peugeot 204 with a configuration closer to the ADO16 but larger, and 1967 by the Simca 1100, the first to combine an end on gearbox and a hatchback. Arguably, Issigonis and BL were in danger of being left behind. The first front wheel drive car from BL after Issigonis's retirement was the Austin Allegro, still with the gearbox in the sump and without the obvious hatchback.

By 1969 Fiat had also followed with the 128, and by 1974 Peugeot, VW and Renault had transverse engine hatchbacks as well. From then onwards, any car in the small or medium market without a transverse engine was considered unusual, and conservative. No wonder Issigonis felt flattered – *“I feel very, very proud that so many people have copied me.”*

Become a five car family. For the price of a single Maxi.

A car is only a car, but a Maxi is something entirely different.

It is, in fact, a whole range of cars. All neatly combined into one.

The Maxi's amazing versatility began on the drawing board. Where the Maxi was designed to fulfill a range of functions that no ordinary saloon car can.

Which is why you'll find technical features on the Maxi you won't find on ordinary cars.

For example, the Maxi has a five-speed gearbox.

And, as the fifth gear acts as an overdrive, it not only makes for a smoother ride, it'll help save you money as well.

The other amazing thing about the Maxi is that it achieved its versatility without sacrificing creature comforts, driveability, reliability, and economy.



School Bus. The Maxi has a huge space in the rear, large enough for any number of tuck boxes, hampers and any other paraphernalia.



Removal Van. Drop down the rear seats on a Maxi and you will discover some 50.9 cubic feet of carrying space. More than enough for even a washing machine.



Family Saloon. Treat a Maxi as a family saloon and it will treat you very kindly. The interior is extremely roomy. And surprisingly luxurious.



Overnight camper. Yes, you can sleep in a Maxi. Because the seats have been designed to convert, quickly, into a comfortable bed for two.

So if you want something more than just another car, take a long look at the features of the versatile Maxi, at your local Austin showroom.



Estate Car. The Maxi has all the best features of an estate car. But when it's finished being a weekend workhorse, it's quickly back to being a comfortable, spacious car.



It's a lot of cars for the money.

Beyond the Maxi, launched on 1969, Issigonis had left little visible influence on the new cars coming from British Leyland, and indeed, the company made definite moves that would have been unthinkable to him, such as the bold, deliberately contemporary styling of the Austin-Morris

18-22 (Princess range) or the Allegro, or the conservative engineering of the Morris Marina. Issigonis had no input to the Marina (other than it using substantial elements from the Morris Minor of course) or the Allegro, as BMC had passed a thin very development programme to Leyland in 1968, largely due to financial pressures. Issigonis never had any input into MG sports cars or the large, rear drive saloons BMC were still building the late 1960s, and the Austin 3 Litre, based on Issigonis's Austin 1800 was driven by George Harriman. You could, however, discern Issigonis's influence on some of BMC's light commercials, especially the underfloor engined JU and walk through EA vans of the late 1960s.

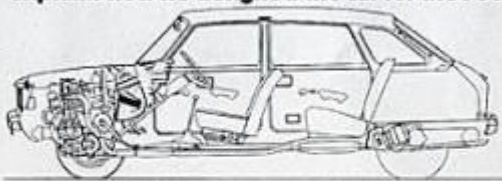


By the mid 1970s, Issigonis was beginning suffer from Meniere's disease, and the consequent loss of full control of his balance let him to retreat from prominence. He still worked to his consultancy agreement but did so almost exclusively from home, briefing and debriefing nominated BL engineers each morning. He was involved in engine design as well, requesting unsuccessfully that BL build 4 and 6 cylinder engines for Mini variants. But his true interest was in the 9X and its power unit, and getting a version of it accepted by BL. He persisted in this into the 1980s, competing in vain against the Austin Metro, an improved version of the BMC A series engine and seemingly oblivious to the Company's financial state.

The end of the agreement came in 1986, when Issigonis wrote directly to Graham Day, BL's then new Chairman. He pressed the case, again, for the

gearless 9X, complained about electronics in cars, designers using CAD systems and not slide rules, and changes in the model designations of the existing Mini. Day terminated the consultancy agreement, without any more consultation. More importantly, the end of the agreement also marked the end of goodwill payments from the Company that covered his nursing care, and he was forced to move from his home to a smaller flat. He died in October 1988, aged 82.

Sir Alec Issigonis, creator of the famous Mini, explains how he designed the car for the 70's.



Motoring in the 70's is going to pose some new problems. Problems which need solutions not catered for by the conventional car.


Realizing this, we at Austin-Morris set about building a motor car which fulfils the practical needs of the motorist for the next ten years.

This vehicle breaks many of the conventional rules. To me it is the most sensibly designed car I can think of.

There seems no better way of arriving at a car for the 70's.

I think that you, as a motorist, will find the problems we had to cope with in designing this car, applicable to your kind of motoring. Our solution represents the best piece of machinery our industry has produced to date.

The primary consideration – to give maximum passenger space within a minimum sized car.



To allow the maximum interior room for passengers within a minimal space we applied the same principles we used on the Mini, 1100/1300 and 1800. This new car is a logical progression of these trends. The thinking behind it is simple. You put a wheel on each corner of the car, mount the engine transversely and the rest of the space is for people. It gives a vast amount of interior room and yet remains small enough overall to make parking easy. A most important factor in the next ten years.

Not just spacious, but safe as well.

With increasing importance rightly placed on safety, this new car had to have superb road-holding capabilities.

We were fortunate in having already developed the transverse engine. Not only does an engine mounted sideways save on space, it also allows us to employ front-wheel drive, using the specially designed "E" series overhead camshaft engine.

By driving the front wheels of our new car, we added appreciably to the traction of the vehicle.

The car is very safe, especially in bad weather when road conditions are at their worst. Not only safe, but smooth and comfortable thanks to the well-proven Hydrocane® suspension.

Passengers have luggage. An easily accessible carrying space had to be provided.

Design a car capable of carrying a lot of people and you have to allow for their baggage. At least that's the way we see it at Austin-Morris.


With this new design we not only allowed for an enormous luggage space, but we made a full-size, opened-opening back door as well. This self-lifting fifth door gives the easiest access for loading and unloading. This is particularly important when you're in a confined parking space.

With a fifth door we could increase the versatility of this car by converting it into an estate.

With a fifth door we had a thoroughly dual-purpose car.

Without compromising the car's lines, we combined the best features of a saloon and an estate car. By arranging for the rear seats to be folded forward, we arrived at a car with estate capacity but still with the style and line of a saloon.

To my way of thinking, this is going to be the trend for the 70's. Other manufacturers are likely to follow our lead.



If the seats fold one way, it seemed logical that they should fold two ways.

The car was taking shape. It was most definitely a multi-purpose vehicle.

The next obvious step was to hinge the rear seats so they folded in both directions. We did this and made the front seats fully reclining. The result, a car with an interior that converts comfortable seats into a well upholstered double bed.

The rising cost of petrol meant the inclusion of overdrive for motorway motoring.

Having taken care of the motorist's comfort, we turned our thinking to the motorist's pocket.

Obviously petrol prices aren't going to get any lower. So we built a five speed gear box. The fifth gear is essentially an economy overdrive for motorway work. It means the engine runs at a relaxed speed which leads to a saving in fuel and oil and reduces wear and tear.

The car should be a complete car with "extras" designed and built-in by us.


Usually when you buy a new car you find that in addition to the purchase price you also need to spend out on so called "extras".

We decided that this was going to be a complete car.

To do this, I made sure my design team added to their specifications all the extras you'd need.

There's a wing mirror, two-speed wipers, servo assisted disc brakes, reversing light, dual windscreen wipers and, of course, radial tyres.

When you add all this up, our bonnethead must represent the most practical and pleasurable way of motoring in the seventies.



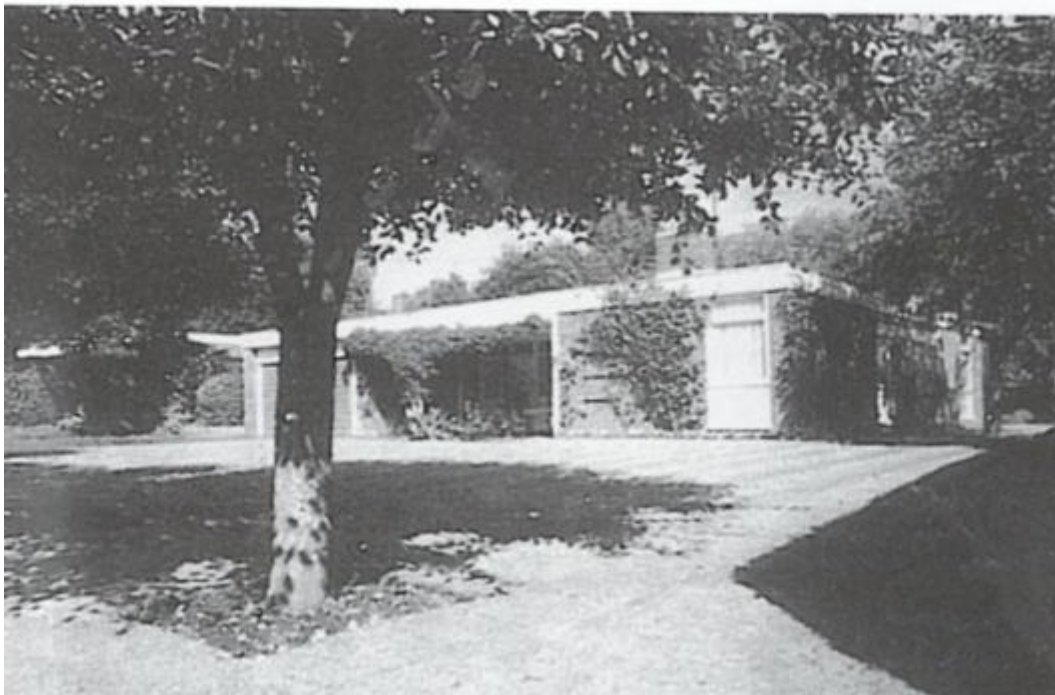
Issigonis's legacy is undoubtedly best seen through his cars, from the Minor to the Maxi, which challenged conventions through engineering ingenuity. He showed that cars could be practical and pleasant to ride in and drive, and that size was not everything; he defined the template for the small petrol engine car for 50 years, maybe longer, and showed how modest cars could become "wish list" items, attracting customer such as Enzo Ferrari.

The image his cars achieved for BMC was arguably a factor in the survival of the company in the market place, and BMC used his personality extensively in advertising which you can imagine Issigonis publicly hating but privately loving. The inability of these cars to withstand business case scrutiny crucial in the company's decline, and others must also stand up for that -Issigonis didn't claim to be a product planner in the sense Ford would recognise but saw all his cars as separate entities. His inability to accept guidance (stubbornness may be a better term) also led to some misjudged products – the Maxi comes to mind – but perhaps the purity of his predominantly engineering solution with poor execution in the areas

Issigonis didn't or wouldn't appreciate (looks, practicality, ergonomics, product revisions, marketing) was also overlooked by too many within BMC.



Issigonis never married; most accounts suggest that he was probably gay but he was obviously unable to express himself without huge risk to his professional status and even the risk of prosecution.



He lived with his mother to whom he was devoted, until her death in 1972, latterly in Edgbaston in Birmingham, in a large bungalow (above), divided into two wings. On his side, Issigonis built a large model railway in the double garage that ran out through the walls and around the garden.

He was able to share his engineering and automotive interests, through frequent tours of Longbridge in the 1960s, with a first cousin once removed on his mother's side of his family, who later completed a mechanical engineering degree and followed a career in the motor industry. His name? Dr.Ing. Bernd Peter Pischetsrieder - who became head of BMW and then of Volkswagen.



Bernd Peter Pischetsrieder.

Alec Issigonis was appointed Commander of the British Empire (1964), Fellow of the Royal Society of Arts (1967), Royal Designer for Industry (1964). Issigonis was knighted in 1968.

3. Iconic Minis

The Italian Job



The Italian Job was a 1969 British comedy caper film, written by Troy Kennedy Martin, produced by Michael Deeley and directed by Peter Collinson. It tells the story of Charlie Croker (Michael Caine), the leader of a cockney criminal gang released from prison with the intention of doing a "big job" in Italy to steal gold bullion from an armoured security truck.

The human star of the show was Michael Caine. But the mechanical stars of the show were three Minis used as getaway cars carrying the stolen gold bullion. Their escapades included travelling down a staircase and driving through a sewer unnel (above).

The oldest remaining Mini



The oldest remaining Mini, the Austin Mini 1959 (left) pictured with a Mini 35 SE outside the Longbridge factory in 1994.

Footballer Kevin Ball's Mini



Footballer Kevin Ball photographed with his first Mini at his Farnham home in the 1980s.

Margot Fonteyn's Mini



Former prima ballerina, Dame Margot Fonteyn, stage name of Margaret Evelyn de Arias, pictured with her Mini.

Prince Charles



Prince Charles with his Mini while an undergraduate at Cambridge University.

Charlotte Rampling on a Mini



January 1967: English actress and model Charlotte Rampling poses on the roof of a Mini.

Oh Dear!



The aftermath of a Mini owner who left his car in reverse in a London roof-top car park. The vehicle went straight over the edge, landing 15 foot down on top of another car below in Old Street.

50th Anniversary



Mini owners celebrating the 50th anniversary of the car drive through Crystal Palace Park at the start of the annual London To Brighton Mini Run on May 17, 2009 in London.

Floral Mini



Birmingham City Council covered this Mini in flowers as a focal point of the 2011 Royal Horticultural Society Tatton Flower Show.

The Mini factory at Cowley, Oxford



The Mini production line at the BMW factory at Cowley, Oxford.

London Olympics Opening Ceremony 2012



The remarkable opening ceremony of the 2012 London Olympic Games celebrated among other icons of British success James Bond, the National Health Service, and the Mini (above).
